

STATUTORY DECLARATION

I, Satoko YUGARI, of Taiyo Seimei Otsuka Building 3F,
2-25-1, Kitaotsuka, Toshimaku, Tokyo, 170-0004, Japan, do
solemnly and sincerely declare as follows:

I am well acquainted with the English and Japanese
languages.

The attached translation is true into the English
language of the accompanying certified copy of the document
filed in the name of Fuji Photo Film Co., Ltd., in the Japanese
Patent Office on 19 December 2000, in respect to an application
for Patent.

This 17th day of October 2005,

A handwritten signature in cursive script, appearing to read 'Satoko YUGARI', is written over a horizontal line.

Satoko YUGARI

JAPAN PATENT OFFICE

This is to certify that the annexed is a true copy of the
following application as filed with this Office

Date of Application:	19 December 2000
Application Number:	Pat. Appl. 2000-385786
Applicant(s):	Fuji Photo Film Co., Ltd.

3 September 2001

Commissioner,

Japan Patent Office

Kozo OIKAWA

Certification Number

2001-3081341

2000-385786

[TITLE OF THE DOCUMENT] Patent Application

[REFERENCE NUMBER] P20001219D

[FILING DATE] 19 December 2000

[ATTENTION TO] Commissioner of the Patent Office

[INTERNATIONAL PATENT CLASSIFICATION] B41J 2/315

[INVENTOR]

[ADDRESS OR RESIDENCE] C/O Fuji Photo Film Co., Ltd.
3-13-45 Senzui, Asaka-shi, Saitama, Japan

[NAME] Keizo UCHIOKE

[INVENTOR]

[ADDRESS OR RESIDENCE] C/O Fuji Photo Film Co., Ltd.
3-13-45 Senzui, Asaka-shi, Saitama, Japan

[NAME] Takao MIYAZAKI

[APPLICANT]

[IDENTIFICATION NUMBER] 000005201

[NAME] Fuji Photo Film Co., Ltd.

[AGENT]

[IDENTIFICATION NUMBER] 100075281

[PATENT ATTORNEY]

[NAME] Kazunori KOBAYASHI

[TELEPHONE NUMBER] 03-3917-1917

[FEE]

[PREPAYMENT BOOK NUMBER] 011844

[PAID AMOUNT] 21,000

[LIST OF FILED DOCUMENTS]

[TITLE] Specification 1

[TITLE]	Drawings	1
[TITLE]	Abstract	1
[NECESSITY OF PROOF]	Need	

[DOCUMENT NAME] Specification

[TITLE OF THE INVENTION] Image outputting apparatus

[SCOPE OF CLAIMS]

[CLAIM 1] An image outputting apparatus for printing image data on a recording sheet by using a storage medium in which a plurality of said image data and additional information thereof are recorded, said image outputting apparatus,

characterized by comprising a plurality of sorting trays for containing said recording sheet on which said image data has been printed, classifying said recording sheet on the basis of said additional information of said image data, allocating said sorting tray to which said recording sheet is discharged in accordance with said classification, and discharging said recording sheet to said sorting tray corresponding to said classification.

[CLAIM 2] An image outputting apparatus claimed in claim 1, wherein said sorting tray is optionally designated to each said classification.

[CLAIM 3] An image outputting apparatus claimed in claim 1, wherein said sorting tray is designated to each said classification based on said additional information of said image data.

[CLAIM 4] An image outputting apparatus claimed in any one of claims 1 to 3, wherein a displaying member is provided on said sorting tray itself or near said sorting tray, said displaying member showing classification information of each

said classification.

[CLAIM 5] An image outputting apparatus claimed in any one of claims 1 to 4, wherein said additional information is at least either photographic information given at the time of capturing said image or replay information given after capturing said image.

[DESCRIPTION OF THE INVENTION]

[0001]

[FIELD OF THE INVENTION]

The present invention relates to an image outputting apparatus, and more particularly to an image outputting apparatus for printing image data on a recording material.

[0002]

[PRIOR ARTS]

In an electronic still camera, an imaging device of a CCD image sensor or the like is disposed behind a taking lens. An optical subject image formed on a photoelectric surface of the imaging device is converted into a digital signal, and is recorded, as image data, in a storage medium (hereinafter referred to as memory) of a smart medium, a compact flash memory and so forth. At the same time, information corresponding to the image data is also recorded in the memory as additional information. This additional information includes a photographic date, a photographer, a photographic condition and so forth. The image data recorded in the memory is reproduced on an LCD monitor fitted to the electronic still camera or is reproduced on a display externally connected thereto. Further, it is possible

to produce a photo print from the image data, similarly to a silver photograph, by printing the image on a recording sheet with an image outputting apparatus of a photographic printer or the like.

[0003]

When plural users share the image outputting apparatus, it is preferable to avoid mixing up the photo prints. In view of this, Japanese Patent Laid-Open Publication No. 6-152854 discloses an image outputting apparatus in which sorting trays for sorting the photo prints every user are registered in a sorting-data table in advance. The photo print is discharged to the sorting tray registered for each user in accordance with the sorting-data table. Meanwhile, Japanese Patent Laid-Open Publication No. 8-133579 discloses an image outputting apparatus in which the photo prints are discharged to the sorting trays respectively corresponding to an input place of the image data. In addition, the sorting tray of this Publication is provided with an indicating portion for showing the input place of the image data. Owing to this, it is easy to distinguish the input place of the photo print discharged to each sorting tray.

[0004]

Recently, the memory has high capacity so that a number of images to be recorded therein increases. With the increment of the recorded images, a print number also increases when the images stored in the memory are printed on recording sheets. In view of this, a standard DPOF (Digital Print Order Format)

has been proposed and is commercialized as a product for automatically printing the desired images, which are selected from the images captured with the electronic still camera, by using the image outputting apparatus. In the electronic still camera adjusted to the standard DPOF, various designated information are stored in the memory as a DPOF file, besides the image data and the additional information thereof. The various designated information include the image that the user desires to print, a print type thereof, a print size thereof, a print number, and so forth. In accordance with the designated information stored in the DPOF file, a photo printer adjusted to the standard DPOF prints the image data on the recording sheet.

[0005]

[PROBLEMS TO BE SOLVED BY THE INVENTION]

However, in the image outputting apparatus such as described above, the photo prints are merely classified on the basis of the pre-registered information of the users or the input places of the image data. Therefore, it is impossible to discharge the photo prints, classifying them on the basis of the additional information recorded in the memory together with the image data.

[0006]

The present invention is to solve the above problem and aims to provide an image outputting apparatus in which classification of photo prints is performed on the basis of additional information of image data recorded in a storage

medium, and the photo prints are discharged to respective sorting trays allocated to every classification.

[0007]

[MEANS FOR SOLVING THE PROBLEMS]

In order to achieve the above object, an image outputting apparatus according to the present invention for printing image data on a recording sheet by using a storage medium in which a plurality of the image data and additional information thereof are recorded comprises a plurality of sorting trays for containing the recording sheet on which the image data has been printed. The recording sheets are classified on the basis of the additional information of the image data. In accordance with the classification of the recording sheet, the sorting tray is specified to which the recording sheet is discharged. The recording sheet is discharged to the sorting tray corresponding to the classification.

[0008]

It is preferable that the sorting tray is optionally designated to each classification. It is also preferable that the sorting tray is designated to each classification based on the additional information of the image data. Furthermore, a displaying member is preferably provided on the sorting tray itself or near the sorting tray, to show classification information of each classification. It is preferable that the additional information is at least either photographic information given at the time of capturing the image or replay information given after capturing the image.

[0009]

[EMBODIEMENTS OF THE INVENTION]

Fig. 1 is a block diagram showing a structure of an electronic still camera. The electronic still camera 10 is constituted of a taking lens 11, a CCD image sensor 12, an image-data processing circuit 13, a system controller 14, an LCD panel 15, and so forth. The system controller 14 totally controls an electrical operation of the electronic still camera 10 including the image-data processing circuit 13, and also executes signal processing in response to input signals sent from an operation panel 17 or an external connection terminal group 18, which are connected to an I/O port 16.

[0010]

A photoelectric surface of the CCD image sensor 12, which is disposed behind the taking lens 11, is provided with micro color filters of R, G and B arranged in matrix. An optical subject image formed on the photoelectric surface of the CCD image sensor 12 through the taking lens 11 is converted into electrical image signals of the respective colors by means of a CCD driver 19. The converted image signal is then outputted from the CCD image sensor 12.

[0011]

After the image signal has been amplified by an amplifier 21, the image signal is converted into a digital signal by an A/D converter 22 and is inputted into the image-data processing circuit 13 as image data. The image-data processing circuit 13 executes the predetermined signal processing for the

inputted image data and records the processed image data in a smart medium described later. At the same time, a picture signal corresponding to a composite signal of NTSC system is produced on the basis of the image data for which the predetermined signal processing has been executed. The picture signal is inputted into an LCD driver 25 via a D/A converter 23 and an amplifier 24.

[0012]

The LCD panel 15 is disposed on a rear face of a camera body (not shown) and is driven by the LCD drive 25. The LCD panel 15 continuously displays the subject image under a capture mode. Meanwhile, the LCD panel 15 displays an image stored in the smart medium such as described later under a reproduction mode. The picture signal is also outputted to an output terminal 26 especially for the picture signal. When a display is connected to the output terminal 26, it is possible to watch both of the continuous subject image captured by the CCD image sensor 12 and the image stored in the smart medium. As well known, a drive source of the CCD driver 19 is synchronized with sampling timing of the A/D converter 22.

[0013]

An EEPROM 27 stores various adjustment data in advance. The system controller 14 refers to the adjustment data stored in the EEPROM 27 when operating the electronic still camera 10 in accordance with a predetermined sequence. As to the adjustment data, there are data concerning the focus of the taking lens 11, color correction, and so forth.

[0014]

The smart medium 30 is set to a holder 31 provided in the camera body (not shown) when the electronic still camera 10 is used. The smart medium 30 is constituted of a DRAM which is capable of accessing at high speed, and stores image files and a DPOF file described later.

[0015]

Fig. 2 shows a directory structure of the smart medium 30. Under a root-directory "Root", sub-directories "IM_1", "IM_2", ... "IM_n" and "MISC" are respectively formed. The sub-directories "IM_1" to "IM_n" store the image files 35a to 35n of the captured images one frame by one frame. The sub-directory "MISC" stores the DPOF file 36.

[0016]

Each of the image files 35 includes the image data 37a for which the predetermined signal processing has been executed by the image-data processing circuit 13 and additional information 37b concerning the image data 37a. As the additional information 37b, a photographic date, a photographer, a photographing place, photographic conditions (exposure conditions, a shutter speed, etc.), an ID number of a photographing device, and so forth are recorded. When the image data 37a of the captured subject image is recorded in the smart medium 30, the additional information 37b is automatically recorded therein on the basis of information given prior to capturing the image. It is also possible that a user manually records the additional information 37a with the operation panel

17 after capturing the image.

[0017]

The DPOF file 36 stores replay information 36a for designating the image (print image ID) which is desired to be printed by using a photo printer adjusted to the standard DPOF described later. The desired image is selected among the respective image data 37a recorded in the smart medium 30. Moreover, the replay information 36a designates print conditions of the desired image (a print size, a print number, trimming, print of the photographic date, and so forth).

[0018]

When a photo print produced from the image data 37a is classified on the basis of the additional information 37b, for instance, on the basis of the photographic date, a classification condition which designates the classification of the photo print by the "photographic date" is recorded as the replay information 36a besides the print image ID and the print conditions. Note that the replay information 36a is assigned, before printing, by a user with the operation panel 17 provided on the electronic still camera 10.

[0019]

Fig. 3 is a block diagram showing a structure of the photo printer adjusted to the standard DPOF. The photo printer 40 is constituted of a system controller 41, an I/O port 42, an image-data processor 43, a printing section 44, a sorting section 45 and a displaying section 46. The system controller 41 totally controls an electrical operation of the photo printer

40, and also executes signal processing in response to input signals sent from an operation panel 47 connected to the I/O port 42.

[0020]

Upon setting the smart medium 30 to a holder 48, the DPOF file 36 recorded in the smart medium 30 is read into the system controller 41 via the I/O port 42. A replay-information processing section 41a judges the print image ID, the print condition, and the classification condition of the replay information 36a recorded in the DPOF file 36. Meanwhile, the system controller 41 reads the additional information 37b of the image file 35 designated by the classification condition, and allocates sorting trays to which the photo prints are discharged in accordance with the classification. The sorting tray is described later in detail.

[0021]

The system controller 41 sends an image processing signal for instructing the print condition except the print image ID and the print number, to the image-data processor 43. The system controller 41 also sends a print signal instructing the print number to the printing section 44, and sends a classification signal instructing the classification of the photo prints to the sorting section 45. Further, the system controller 41 sends a display signal for displaying the classification information allocated to the respective sorting trays, to the displaying section 46.

[0022]

Into the image-data processor 43, the image file 35 recorded in the smart medium 30 is properly read via the I/O port 42 in response to the image processing signal inputted from the system controller 41. Image processing is executed for the image data 37a on the print condition instructed by the image processing signal. Then, image composite processing is executed such that the photographic data is displayed within a picture frame. After completing the image processing and the image composite processing in this way, the image data is sent to the printing section 44.

[0023]

The printing section 44 prints the image data, which is inputted from the image-data processor 43, on a recording sheet to produce the photo print. The print number of the photo prints is instructed by the print signal inputted from the system controller 41. The photo print is discharged to the sorting section 45.

[0024]

The sorting section 45 is constituted of a sorter 50 and the sorting trays 51a to 51f. Based on the classification signal sent from the system controller 41, the sorter 50 distributes respective conveyance routes (shown by broken lines) of the photo prints, which have been discharged from the printing section 44, in accordance with the classification. In this way, the photo prints are respectively discharged to the corresponding trays 51a to 51f allocated on the basis of the classification.

[0025]

The displaying section 46 is constituted of an LCD driver 55 and LCD panels 56a to 56f. The LCD driver 55 displays the classification information, which are allocated to the respective trays 51a to 51f in accordance with the classification signal sent from the system controller 41, on the LCD panels 56a to 56f. Fig. 3 shows a case where the photo prints are classified on the basis of the "photographic date". In this case, the "photographic dates" allocated to the sorting trays 51a to 51f are displayed on the LCD panels 56a to 56f respectively. In the present embodiment, the sorting trays 51a to 51f and the LCD panels 56a to 56f are provided as six pairs. However, a number of the pairs is not exclusive. In accordance with the structure and the utilization of the photo printer 40, the number of the pairs may be increased or decreased as appropriate, for instance, may be ten or twenty.

[0026]

Next, an operation of the above structure is described. When a user hopes to print some images among the images captured by the electronic still camera 10, with classifying the photo prints on the basis of the photographic date, the user designates the print image ID and the print condition of each desired image, and the classification condition for classifying the photo print by every photographic date with the operation panel 17 of the electronic still camera 10. The designated print image ID, the print condition and the classification condition are recorded in the DPOF file 36 of the smart medium

30 as the replay information 36a.

[0027]

Upon setting the smart medium 30 to the holder 48 of the photo printer 40, the DPOF file 36 is read into the system controller 41 first. The replay-information processing section 41a judges the print image ID, the print condition and the classification condition from the replay information 36a recorded in the DPOF file 36. Successively, the system controller 41 reads the data of the "photographic date" designated in the classification condition, from the additional information 37b, and then allocates the sorting trays 51a to 51f to which the photo prints classified by every photographic date are discharged. Then, the "photographic dates" corresponding to the sorting trays 51a through 51f are respectively displayed on the LCD panels 56a through 56f.

[0028]

The image file 35 designated by the print image ID of the replay information 36a is appropriately read into the image-data processor 43. The image processing according to the designated print condition and the image composite processing to display the photographic date within the picture frame are executed for the image data 37a. After that, the image data 37a is printed on the recording sheet by the printing section 44 to produce the photo print. The conveyance route of the photo print discharged from the printing section 44 is switched by the sorter 50 in accordance with the classification signal sent from the system controller 41 on the basis of the photographic date.

Hence, the photo print is discharged to the respective sorting trays 51a to 51f corresponding to this photographic date. That is, the photo print having the photographic date of "month ○, day ○" is discharged to the corresponding sorting tray 51a, and the one having the photographic date of "month ○, day △" is discharged to the corresponding sorting tray 51b.

[0029]

In the above-described embodiment, the "photographic date" is designated as the classification condition. The present invention, however, is not limited to this. The classification condition may be any of the additional information, such as the photographer, the photographing place, the photographic condition, and so forth, or the replay information, such as the print size, the print resolution, and so forth. It is also possible that the classification condition is a combination of the above-mentioned information.

[0030]

Additionally, the sorting tray is automatically allocated to each classification at the side of the photo printer based on the additional information designated in the classification condition of the DPOF file. However, the DPOF file may store sorting-tray information for allocating the sorting trays, and the photo prints may be sorted in accordance with the sorting-tray information.

[0031]

Further, a predetermined number of the sorting trays may be automatically allocated based on the additional information

designated in the classification condition. The other sorting trays may sort the photo prints in accordance with the sorting-tray information recorded in the DPOF file.

[0032]

In the above embodiment, the classification condition is designated at the side of the electronic still camera. However, the classification condition may be designated at the side of the photo printer before inputting the image or before performing the print. In this case, the classification condition is designated by using an operation panel provided on the photo printer. Moreover, the above embodiment employs the electronic still camera and the photo printer which are adjusted to the standard DPOF. However, if the image data and the additional information thereof are recorded in a certain recording medium, another recording format may be adopted. Further, it is possible to use a color thermal printer, an ink jet printer, a digital printer for exposing a photosensitive material, and so forth may be utilized as the photo printer.

[0033]

[EFFECT OF THE INVENTION]

As described above, in the image outputting apparatus according to the present invention, a plurality of the sorting trays are arranged for containing the recording sheets, on each of which the image data has been printed. The recording sheets are classified on the basis of the additional information of the image data. The sorting tray is specified to which the recording sheet is discharged in accordance with the

classification of the recording sheet. The recording sheets are discharged to the sorting trays, corresponding to the classification. Thus, the printed recording sheets are prevented from being discharged in a mixed state even when producing the photo prints from plural image data.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[Figure 1] A block diagram showing a structure of an electronic still camera.

[Figure 2] A schematic diagram showing a directory structure of a smart medium.

[Figure 3] A block diagram showing a structure of a photo printer.

[DESCRIPTION OF THE REFERENCE NUMBERS]

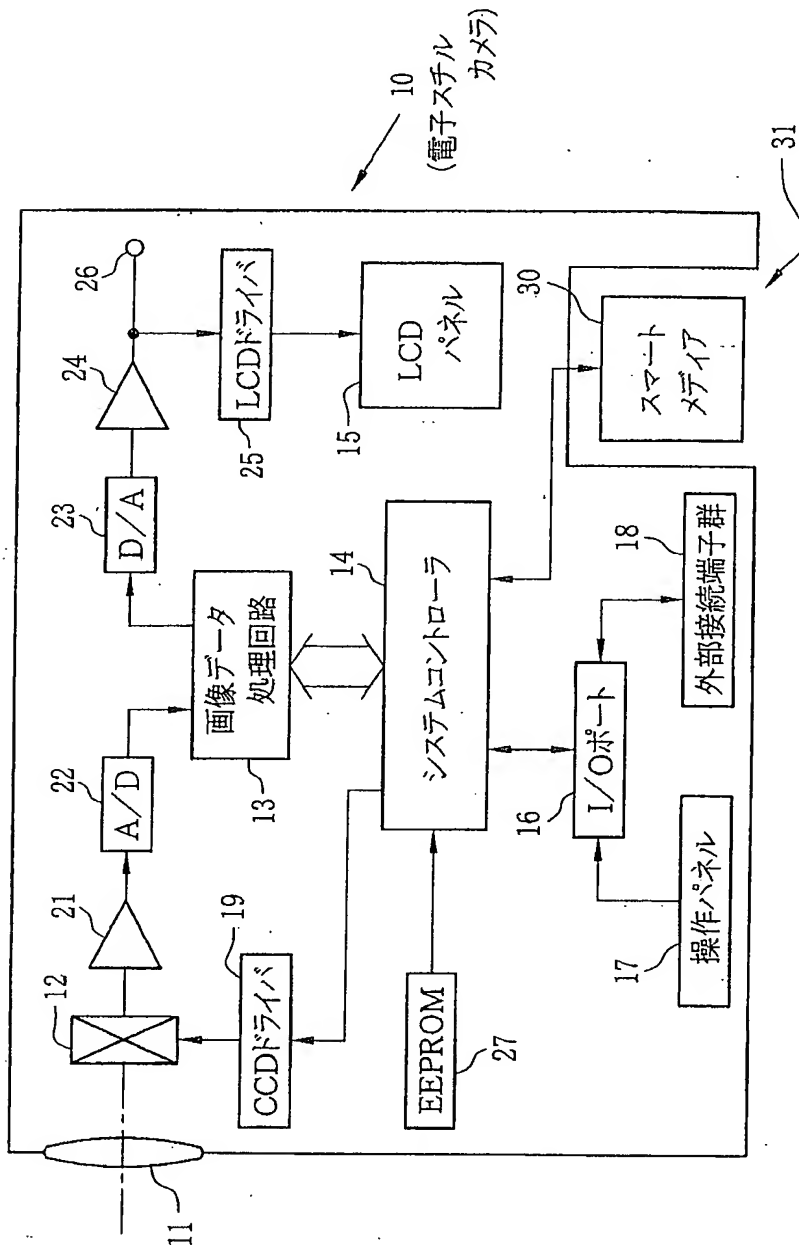
10 electronic still camera
17, 47 operation panel
30 smart medium
35 image file
36 DPOF file
36a replay information
37a image data
37b additional information
40 photo printer
45 sorting section
46 displaying section
56 LCD panel

【書類名】 図面 Drawing

Document

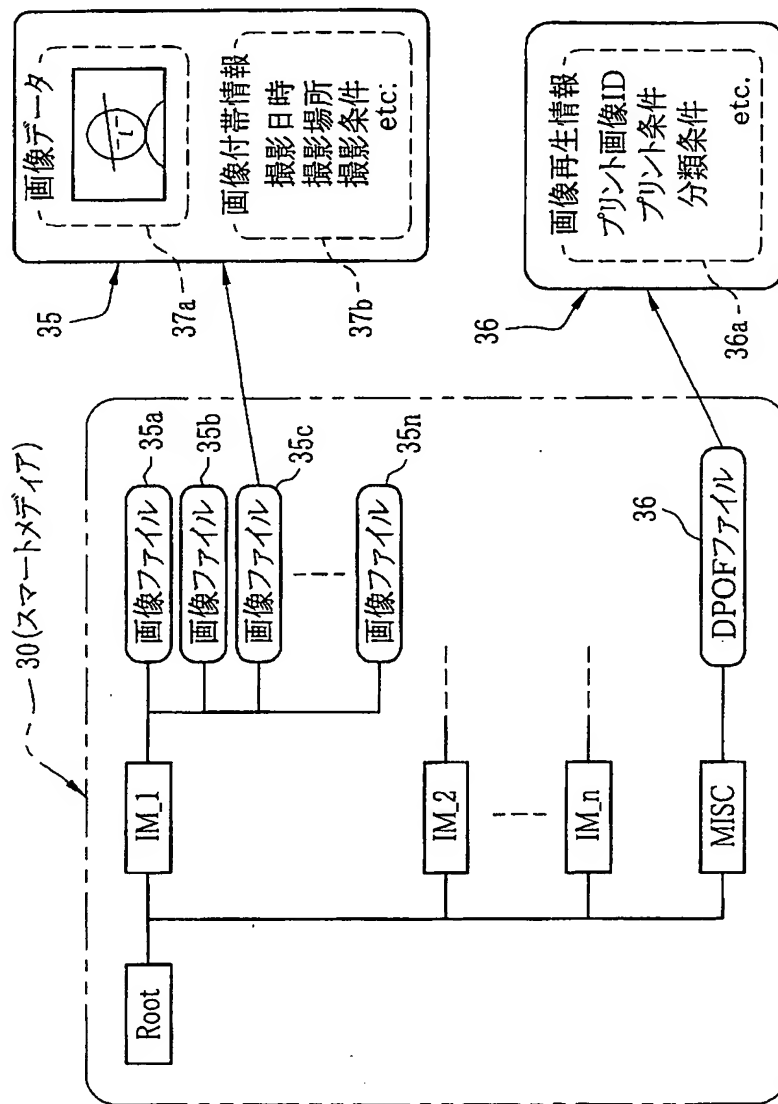
【図 1】 Name

FIG. 1



- 10...ELECTRONIC STILL CAMERA
- 13...IMAGE-DATA PROCESSING CIRCUIT
- 14...SYSTEM CONTROLLER
- 15...LCD PANEL
- 16...I/O PORT
- 17...OPERATION PANEL
- 18...EXTERNAL CONNECTION TERMINAL GROUP
- 19...CCD DRIVER
- 25...LCD DRIVER
- 30...SMART MEDIUM

【図2】
FIG. 2

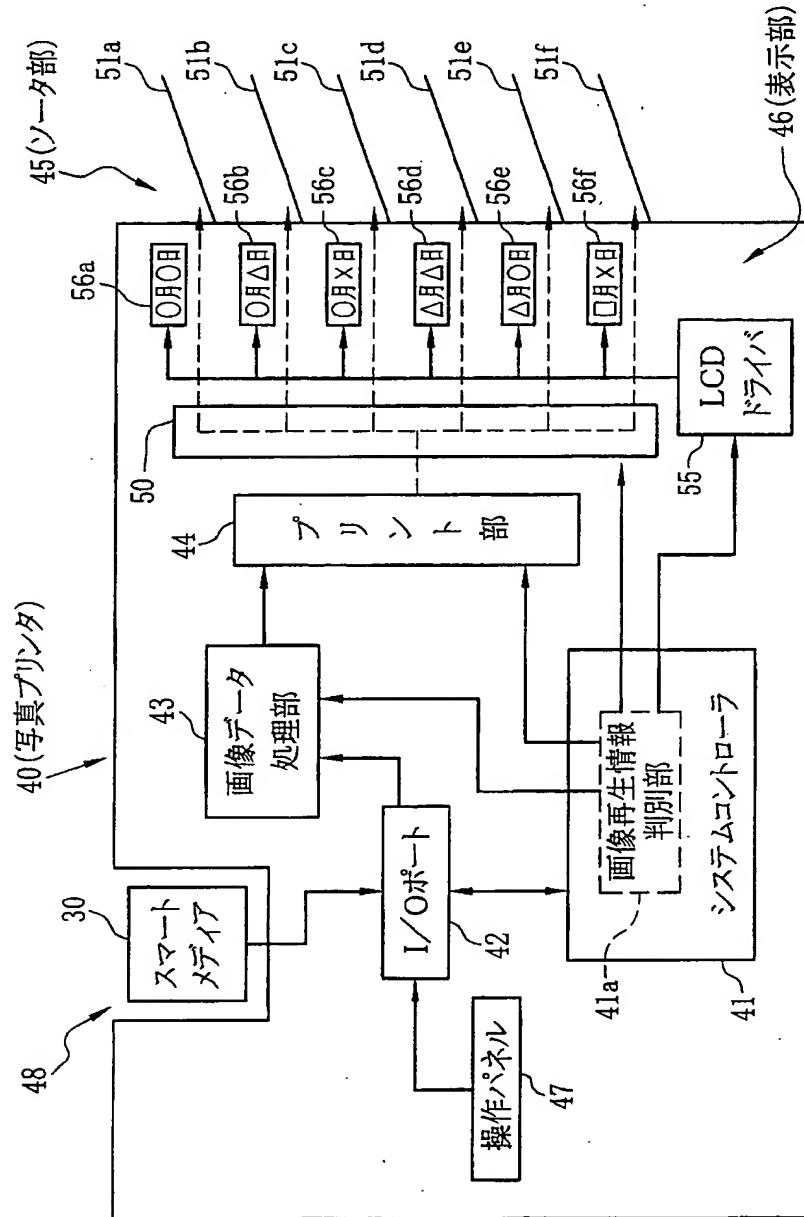


30...SMART MEDIUM
35a to 35n...IMAGE FILE
36...DPOF FILE
36a...REPLAY INFORMATION
PRINT IMAGE ID
PRINT CONDITIONS
CLASSIFICATION CONDITIONS
etc.

37a...IMAGE DATA
37b...ADDITIONAL INFORMATION
PHOTOGRAPHIC DATE
PHOTOGRAPHING PLACE
PHOTOGRAPHIC CONDITION
etc.

【図 3】

FIG. 3



56a...month ○, day ○
56b...month ○, day △
56c...month ○, day ×
56d...month △, day △
56e...month △, day ○
56f...month □, day ×

30...SMART MEDIUM
40...PHOTO PRINTER
41...SYSTEM CONTROLLER
41a...REPLAY-INFO JUDGING SECTION
42...I/O PORT
43...IMAGE-DATA PROCESSOR
44...PRINTING SECTION
45...SORTING SECTION
46...DISPLAYING SECTION
47...OPERATIONAL PANEL
55...LCD DRIVER

[TITLE OF DOCUMENT] Abstract

[ABSTRACT]

[OBJECT] To classify and discharge photo prints on the basis of additional information of image data.

[RESOLUTION] A system controller 41 classifies photo prints on the basis of additional information of image data under a classification condition recorded in a smart medium 30. The system controller 41 also allocates respective sorting trays 51a to 51f to which the photo prints are discharged in accordance with each classification. An image-data processor 43 executes image processing and image composite processing for the image data. The processed image data is printed on a recording sheet by a printing section 44 to produce the photo print. Based on a classification signal sent from the system controller 41, a sorter 50 distributes conveyance routes of the photo prints for each classification. The photo prints are discharged to the sorting trays 51a to 51f for each classification. Thus, the photo prints are prevented from being discharged in a mixed state even when producing the photo prints from plural image data.

[ELECTED FIGURE] Figure 3